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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/631,977 | 07/31/2003 | Alexander A. Belokon | 46633/263191 | 2210 |
| 826 | 7590 | 02/08/2005 | EXAMINER | |
| ALSTON & BIRD LLP BANK OF AMERICA PLAZA 101 SOUTH TRYON STREET, SUITE 4000 CHARLOTTE, NC 28280-4000 | | | KIM, TAE JUN | |
| | | ART UNIT | | PAPER NUMBER |
| | | 3746 | | |

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/631,977 | BELOKON ET AL. |
| | Examiner | Art Unit |
| | Ted Kim | 3746 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-33 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-3,9-19,27 and 29-33 is/are rejected.
- 7) Claim(s) 4-8,20-26 and 28 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/17/04 & 7/31/03.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: sensor 60. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 9, 11-19, 31, 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamrin et al (2004-0119291) in view of the admitted prior art (APA) or Mackay (4,754,607). Hamrin et al teach a recuperated gas turbine engine system employing

catalytic combustion 22, comprising: a compressor 30 arranged to receive air and to compress the air; a fuel system operable to supply fuel 46; a catalytic combustor 22 operable to combust the flow to produce hot combustion gases; a turbine 31 arranged to receive the combustion gases and expand the gases to produce mechanical power that drives the compressor; a recuperator 23 arranged to receive exhaust gases from the turbine and the flow discharged from the compressor and cause heat exchange therebetween such that the flow is pre-heated before entering the catalytic combustor; and a system 326 operable to direct a portion of turbine exhaust gases into the compressor 30, such that the flow discharged from the compressor is raised in temperature by said exhaust gases, whereby an inlet temperature to the catalytic combustor is raised; the system operable to direct a portion of turbine exhaust gases into the compressor includes a valve 326 that is controllable to variably adjust a flow rate of the exhaust gases into the compressor, and a control system (inherent) operably connected to the valve 326. Further taught is the control based on the startup of the engine. Hamrin et al do not teach that fuel is injected into the compressor. However, this is admitted prior art. Mackay is also cited to teach injecting the fuel 12 upstream of the compressor 16 via mixer 11 of a catalytic gas turbine system is well known in the art. It would have been obvious to one of ordinary skill in the art to inject the fuel into the compressor, as a well known means for heating the fuel and/or compressing the fuel prior to combustion in the catalytic combustor. Also taught is a generator 20. As for how the fuel and exhaust and air are injected into the compressor, this is regarded as an obvious matter of using the workable connections to get the same components into the compressor.

It would have been obvious to one of ordinary skill in the art to employ the claimed connections, as an obvious matter of finding the workable connections to get the components into the compressor.

4. Claims 1-3, 9-19, 27, 29, 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 06-108879 in view of the admitted prior art (APA) or Mackay (4,754,607). JP '879 teaches (embodiments in Figs. 3-6) a recuperated gas turbine engine system employing catalytic combustion, comprising: a compressor CP arranged to receive air and to compress the air; a fuel system (INJ); a catalytic combustor CC, CCT operable to combust the flow to produce hot combustion gases; a turbine GT arranged to receive the combustion gases and expand the gases to produce mechanical power that drives the compressor; a recuperator HX arranged to receive exhaust gases from the turbine and the flow discharged from the compressor and cause heat exchange therebetween such that the flow is pre-heated before entering the catalytic combustor; and a system TV operable to direct a portion of turbine exhaust gases into the compressor CT and can be branched off before the recuperator (Fig. 4) or downstream of the recuperator (Fig. 6), such that the flow discharged from the compressor is raised in temperature by said exhaust gases, whereby an inlet temperature to the catalytic combustor is raised; the system operable to direct a portion of turbine exhaust gases RP into the compressor includes a valve TV that is controllable to variably adjust a flow rate of the exhaust gases into the compressor, and a control system CNT operably connected to the valve, a temperature sensor TC for fluid exiting the combustor is used by the controller to control the valve (see page 6 of translation). JP '879

does not teach that fuel is injected into the compressor. However, this is admitted prior art. Mackay is also cited to teach injecting the fuel 12 upstream of the compressor 16 via mixer 11 of a catalytic gas turbine system is well known in the art. It would have been obvious to one of ordinary skill in the art to inject the fuel into the compressor, as a well known means for heating the fuel and/or compressing the fuel prior to combustion in the catalytic combustor. Also taught is a generator L. As for how the fuel and exhaust and air are injected into the compressor, this is regarded as an obvious matter of using the workable connections to get the same components into the compressor. It would have been obvious to one of ordinary skill in the art to employ the claimed connections, as an obvious matter of finding the workable connections to get the components into the compressor.

5. Claims 1, 2, 9, 11-19, 29-31, 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mackay (2002/0148227) in view of the admitted prior art (APA) or Mackay (4,754,607). Mackay '227 teaches a recuperated gas turbine engine system employing catalytic combustion, comprising: a compressor 11 arranged to receive air and to compress the air; a fuel system; a catalytic combustor 16 operable to combust the fuel to produce hot combustion gases; a turbine 12 arranged to receive the combustion gases and expand the gases to produce mechanical power that drives the compressor; a recuperator 18 arranged to receive exhaust gases from the turbine and the flow discharged from the compressor and cause heat exchange therebetween such that the flow is pre-heated before entering the catalytic combustor 16; and a system 21 or 46 operable to direct a portion of turbine exhaust gases into the compressor, such that the flow discharged from the

compressor is raised in temperature by said exhaust gases, whereby an inlet temperature to the catalytic combustor is raised; the system operable to direct a portion of turbine exhaust gases into the compressor includes a valve 21 or 46 that is controllable to variably adjust a flow rate of the exhaust gases into the compressor, and a control system operably connected to the valve based on the engine load; a generator 13 is taught. Mackay '227 does not teach that fuel is injected into the compressor. However, this is admitted prior art. Mackay '607 is also cited to teach injecting the fuel 12 upstream of the compressor 16 via mixer 11 of a catalytic gas turbine system is well known in the art. It would have been obvious to one of ordinary skill in the art to inject the fuel into the compressor, as a well known means for heating the fuel and/or compressing the fuel prior to combustion in the catalytic combustor. Also taught is a generator L. As for how the fuel and exhaust and air are injected into the compressor, this is regarded as an obvious matter of using the workable connections to get the same components into the compressor. It would have been obvious to one of ordinary skill in the art to employ the claimed connections, as an obvious matter of finding the workable connections to get the components into the compressor.

Allowable Subject Matter

6. Claims 4-8, 20-26, 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 571-272-4829. The Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.

The fax numbers for the organization where this application is assigned are 703-872-9306 for Regular faxes and 703-872-9306 for After Final faxes.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler, can be reached on 571-272-4834.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of Technology Center 3700, whose telephone number is 703-308-0861. General inquiries can also be directed to the Patents Assistance Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at <http://www.uspto.gov/main/patents.htm>

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|-------------------------------------|-------------------|--------------|
| Ted Kim | Telephone | 571-272-4829 |
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| January 28, 2005 | Fax (After Final) | 703-872-9306 |
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